MADP-008120-12790T



Surface Mount Plastic PIN Diodes

Rev. V5

Features

- Industry Standard Surface Mount Package (SC-79)
- Lead-Free (RoHS Compliant)
 Available with 260 °C Reflow Compatibility
- Low Loss, High Isolation Switching Diodes
- Tape and Reel Packaging

Description and Applications

M/A-COM offers a silicon PIN diode in low cost, surface mount plastic package for use as a switch where low loss and high isolation is required. These diodes are offered as an RoHS compliant device with 100% matte Sn plating. This particular PIN diode was designed to accommodate circuits requiring the benefits of low resistance and requiring low capacitance for various microwave control circuit applications.

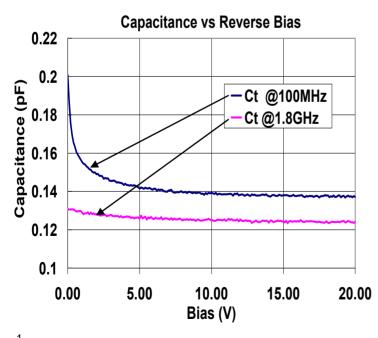
This PIN diode is available in the SC-79 (case style 1279) package. This package is supplied on tape and reel for automatic pick and place assembly. The tape and reel suffix designation is a "T" at the end of the part number.

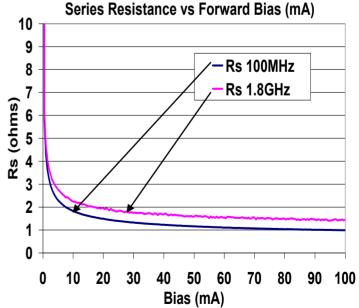
Absolute Maximum Ratings @ 25 °C¹ (Unless Otherwise Noted)

Parameter	Absolute Maximum
Operating Temperature	-65°C to +125 °C
Storage Temperature	-65°C to +150 °C
Junction Temperature	+ 175 °C
Reverse Voltage	Voltage Rating
Forward Current	150 mA DC

Electrical Specifications @ 25°C

					Nominal Cha	aracteristics		
Standard Part Number	Reverse Voltage ¹ (V)	Junction Capacitance ² Max. (pF)	Total Capacitance ² Max. (pF)	R _s @ 10 mA ³ Max. (Ohms)	Carrier Lifetime⁴ (ns)	I-Region Thickness (um)		
MADP-008120-12790T	100	0.060@ 10V	0.150@ 10V	2.5	200	19		





M/A-COM Technology Solutions Inc. (MACOM) and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.

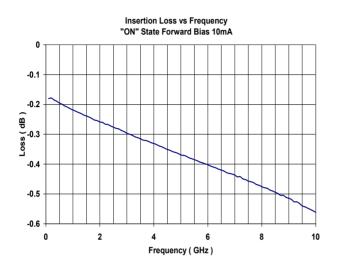
Visit www.macom.com for additional data sheets and product information.

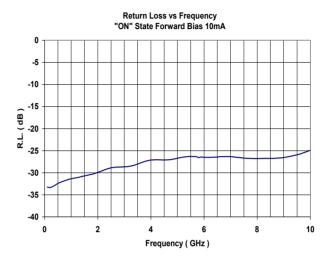


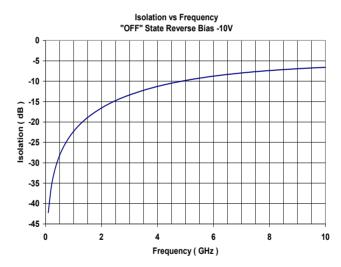
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Rev. V5

Typical RF Performance







Devices mounted in series configuration and fixture losses removed form data.

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Surface Mount Plastic PIN Diodes

Rev. V5

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S-F	'aram	neter	Data	3													
	8120-1279								MADD	08120-1279	от						
				Series Dio				S22 Ang		on @ -10V, (ngle Serie	s Diode C	onfigurat	ion, Z0 =	50 Ohms	
0.100	0.022	-15.170	0.979	-0.570	0.979	-0.570	0.021	-11.230	F (GHz							S22 Mag	
0.200 0.300	0.021 0.022	-9.400 -8.740	0.980 0.979	-1.560 -2.470	0.980 0.979	-1.560 -2.470	0.021 0.022	-4.320 -1.650	0.100 0.200	1.004 1.004	-1.290 -2.610	0.008 0.015	86.770 86.680	0.008	86.770 86.680	0.995	-1.240 -2.500
0.400	0.023	-9.470	0.978	-3.320	0.978	-3.320	0.023	-1.510	0.300	1.005	-3.970	0.023	85.550	0.023	85.550	0.996	-3.760
0.500 0.600	0.024 0.025	-9.420 -9.370	0.978 0.977	-4.140 -4.960	0.978 0.977	-4.140 -4.960	0.024 0.024	-4.040 -7.280	0.400 0.500	1.006 1.006	-5.310 -6.600	0.031 0.039	84.170 82.860	0.031 0.039	84.170 82.860	0.995 0.995	-4.970 -6.210
0.700	0.025	-9.560	0.977	-5.790	0.977	-5.790	0.025	-11.080	0.600	1.007	-7.970	0.046	81.610	0.046	81.610	0.994	-7.410
0.800	0.026	-9.630	0.976	-6.600	0.976	-6.600	0.026	-14.950	0.700 0.800	1.006 1.006	-9.290 -10.630	0.054 0.061	80.220 79.000	0.054 0.061	80.220 79.000	0.993	-8.660 -9.880
0.900 1.000	0.027 0.027	-10.130 -11.180	0.976 0.975	-7.410 -8.210	0.976 0.975	-7.410 -8.200	0.027 0.027	-18.340 -21.010	0.900	1.005	-11.980	0.069	77.790	0.069	77.790	0.992	-11.090
1.100	0.027	-13.470	0.975	-9.020	0.975	-9.020	0.028	-22.930	1.000 1.100	1.005 1.003	-13.270 -14.610	0.076 0.084	76.530 75.230	0.076 0.084	76.530 75.230	0.993 0.993	-12.300 -13.520
1.200 1.300	0.028 0.028	-16.910 -20.680	0.974 0.974	-9.820 -10.620	0.974 0.974	-9.820 -10.620	0.028 0.029	-23.660 -24.110	1.200	1.000	-15.920	0.004	73.910	0.004	73.910	0.992	-14.740
1.400	0.029	-24.730	0.973	-11.410	0.973	-11.410	0.029	-24.180	1.300	1.000	-17.180	0.099	72.610	0.099	72.610		-15.990
1.500 1.600	0.029 0.030	-28.640 -31.880	0.973 0.972	-12.220 -13.020	0.973 0.972	-12.220 -13.020	0.030 0.030	-24.360 -25.130	1.400 1.500	1.002 0.998	-18.470 -19.780	0.106 0.113	71.270 70.000	0.106 0.113	71.270 70.000	0.994 0.988	-17.220 -18.440
1.700	0.030	-34.670	0.972	-13.020	0.972	-13.020	0.030	-26.720	1.600	0.997	-21.070	0.120	68.650	0.120	68.650	0.987	-19.660
1.800	0.030	-36.090	0.971	-14.600	0.971	-14.600	0.031	-28.760	1.700 1.800	0.999 0.996	-22.520 -23.660	0.127 0.134	67.400 66.170	0.127 0.134	67.400 66.170	0.987 0.983	-21.040 -22.020
1.900 2.000	0.031 0.032	-36.820 -37.230	0.971 0.971	-15.400 -16.200	0.971 0.971	-15.400 -16.200	0.032 0.033	-31.590 -34.700	1.900	0.996	-24.990	0.141	64.940	0.141	64.940	0.982	-23.210
2.100	0.033	-37.670	0.970	-16.990	0.970	-16.990	0.034	-37.980	2.000 2.100	0.997 0.994	-26.220 -27.600	0.148 0.155	63.720 62.480	0.148 0.155	63.720 62.480	0.982 0.981	-24.290 -25.580
2.200 2.300	0.034 0.034	-38.210 -39.030	0.970 0.970	-17.780 -18.580	0.970 0.970	-17.780 -18.580	0.035 0.036	-40.890 -43.210	2.200	0.992	-28.910	0.162	61.260	0.162	61.260	0.980	-26.750
2.400	0.035	-40.590	0.969	-19.380	0.969	-19.380	0.037	-45.310	2.300 2.400	0.991 0.988	-30.110 -31.480	0.169 0.176	60.030 58.790	0.169 0.176	60.030 58.790	0.980 0.979	-27.840 -29.140
2.500	0.036	-42.350	0.969	-20.180	0.969	-20.180	0.038	-46.570 47.540	2.400	0.987	-31.460	0.176	57.560	0.176	57.560	0.978	-30.300
2.600 2.700	0.036 0.037	-44.820 -47.340	0.968 0.968	-20.970 -21.760	0.968 0.968	-20.970 -21.760	0.038 0.039	-47.510 -48.060	2.600	0.985	-33.990	0.189	56.320	0.189	56.320	0.978	-31.500
2.800	0.037	-49.970	0.967	-22.550	0.967	-22.550	0.040	-48.590	2.700 2.800	0.983 0.982	-35.240 -36.490	0.196 0.202	55.090 53.870	0.196 0.202	55.090 53.870	0.976 0.973	-32.690 -33.840
2.900 3.000	0.037 0.037	-52.490 -54.590	0.967 0.966	-23.350 -24.130	0.967 0.966	-23.350 -24.130	0.040 0.041	-49.080 -49.680	2.900	0.980	-37.730	0.208	52.660	0.208	52.660	0.971	-34.990
3.100	0.037	-56.300	0.966	-24.920	0.966	-24.920	0.041	-50.610	3.000 3.100	0.979 0.977	-38.930 -40.200	0.214 0.220	51.450 50.260	0.214 0.220	51.450 50.260	0.970 0.967	-36.110 -37.210
3.200 3.300	0.037 0.038	-57.680 -58.500	0.966 0.965	-25.730 -26.500	0.966 0.965	-25.730 -26.500	0.042 0.043	-51.850	3.200	0.976	-41.450	0.226	49.050	0.226	49.050	0.965	-38.340
3.400	0.039	-59.150	0.965	-27.290	0.965	-27.290	0.043	-53.420 -55.100	3.300	0.974	-42.690	0.233	47.850	0.233	47.850	0.963	-39.440
3.500	0.040	-59.900	0.964	-28.090	0.964	-28.090	0.044	-56.800	3.400 3.500	0.973 0.971	-43.930 -45.170	0.238 0.244	46.690 45.490	0.238 0.244	46.690 45.490	0.962 0.961	-40.550 -41.690
3.600 3.700	0.041 0.042	-60.440 -61.400	0.964 0.964	-28.870 -29.670	0.964 0.964	-28.870 -29.670	0.045 0.046	-58.680 -60.340	3.600	0.970	-46.400	0.250	44.300	0.250	44.300	0.960	-42.810
3.800	0.043	-62.360	0.963	-30.470	0.963	-30.470	0.047	-61.640	3.700 3.800	0.968 0.966	-47.590 -48.820	0.256 0.262	43.140 41.960	0.256 0.262	43.140 41.960	0.959 0.957	-43.950 -45.010
3.900 4.000	0.043 0.044	-63.520 -64.980	0.963 0.963	-31.250 -32.050	0.963 0.963	-31.250 -32.050	0.048 0.049	-62.860 -63.740	3.900	0.964	-50.040	0.267	40.730	0.268	40.730	0.957	-46.200
4.100	0.044	-66.650	0.962	-32.850	0.962	-32.850	0.049	-64.400	4.000	0.962	-51.220	0.273	39.580	0.273	39.580	0.955	-47.330
4.200	0.044	-68.080	0.962	-33.630	0.962	-33.630	0.050	-65.020	4.100 4.200	0.960 0.958	-52.410 -53.580	0.278 0.284	38.410 37.260	0.278 0.284	38.410 37.260	0.953 0.951	-48.420 -49.520
4.300 4.400	0.044 0.044	-69.560 -70.860	0.961 0.961	-34.430 -35.220	0.961 0.961	-34.430 -35.220	0.050 0.051	-65.500 -65.810	4.300	0.957	-54.750	0.289	36.130	0.289	36.130	0.949	-50.560
4.500	0.044	-72.070	0.960	-36.010	0.960	-36.010	0.051	-66.470	4.400 4.500	0.954 0.952	-55.930 -57.090	0.294 0.299	35.010 33.910	0.294 0.299	35.010 33.910	0.947 0.945	-51.610 -52.640
4.600 4.700	0.044	-72.940	0.960	-36.810	0.960	-36.810	0.051	-67.090	4.600	0.951	-58.250	0.304	32.790	0.304	32.790	0.943	-53.680
4.700	0.044 0.045	-73.710 -74.390	0.959	-37.590 -38.390	0.960 0.959	-37.590 -38.390	0.052 0.053	-67.830 -68.770	4.700	0.949	-59.410	0.308	31.690	0.308	31.690	0.941	-54.710
4.900	0.045	-74.990	0.959	-39.190	0.959	-39.190	0.053	-69.830	4.800 4.900	0.947 0.945	-60.590 -61.730	0.313 0.318	30.570 29.450	0.313 0.318	30.570 29.450	0.939 0.938	-55.750 -56.800
5.000 5.100	0.046 0.047	-75.460 -76.260	0.958 0.958	-39.980 -40.780	0.958 0.958	-39.980 -40.780	0.054 0.054	-70.850 -71.960	5.000	0.943	-62.900	0.323	28.330	0.323	28.330	0.937	-57.810
5.200	0.047	-77.020	0.958	-41.590	0.958	-41.590	0.055	-72.950	5.100 5.200	0.942 0.940	-64.040 -65.170	0.327 0.332	27.220 26.090	0.327 0.332	27.220 26.090	0.935 0.934	-58.870 -59.930
5.300	0.048	-77.800	0.957	-42.380	0.957	-42.380	0.056	-73.660	5.300	0.937	-66.280	0.336	25.000	0.336	25.000	0.932	-60.960
5.400 5.500	0.048 0.048	-78.490 -79.410	0.957 0.957	-43.180 -43.980	0.957 0.957	-43.180 -43.980	0.056 0.057	-74.540 -74.980	5.400	0.935	-67.410	0.340	23.900	0.340	23.900	0.931	-62.030
5.600	0.048	-80.330	0.956	-44.770	0.956	-44.770	0.057	-75.490	5.500 5.600	0.934 0.932	-68.490 -69.590	0.345 0.349	22.810 21.780	0.345 0.349	22.810 21.780	0.930 0.927	-62.990 -63.970
5.700 5.800	0.048 0.047	-81.070 -82.150	0.956 0.955	-45.570 -46.370	0.956 0.955	-45.570 -46.370	0.058 0.057	-75.750 -76.580	5.700	0.930	-70.740	0.353	20.740	0.353	20.740	0.925	-64.960
5.900	0.047	-82.340	0.955	-47.170	0.955	-47.170	0.058	-76.030	5.800 5.900	0.912 0.926	-72.440 -72.920	0.357 0.361	19.770 18.640	0.357 0.361	19.770 18.640	0.908 0.922	-66.570 -66.920
6.000	0.047	-82.800	0.955	-47.970	0.955	-47.970	0.058	-76.240	6.000	0.924	-73.990	0.365	17.600	0.365	17.600	0.920	-67.880
6.100 6.200	0.047 0.047	-83.130 -83.430	0.954 0.954	-48.770 -49.590	0.954 0.954	-48.770 -49.590	0.058 0.059	-76.300 -76.650	6.100 6.200	0.922 0.921	-75.080 -76.170	0.368 0.372	16.570 15.530	0.368 0.372	16.570 15.530	0.918 0.917	-68.820 -69.760
6.300	0.047	-83.650	0.954	-50.380	0.954	-50.380	0.059	-76.890	6.300	0.921	-77.220	0.372	14.530	0.372	14.530	0.917	-70.700
6.400 6.500	0.048 0.048	-84.070 -84.640	0.953 0.953	-51.180 -51.990	0.953 0.953	-51.180 -51.990	0.059 0.059	-77.260 -78.150	6.400	0.916	-78.290	0.379	13.460	0.379	13.460	0.913	-71.670
6.600	0.048	-84.660	0.952	-52.800	0.952	-52.800	0.059	-78.220	6.500 6.600	0.914 0.914	-79.540 -80.350	0.383 0.386	12.450 11.410	0.383	12.450 11.410	0.910 0.911	-72.820 -73.520
6.700	0.048	-84.970	0.952	-53.610	0.952	-53.610	0.059	-78.730	6.700	0.911	-81.450	0.389	10.390	0.389	10.390	0.908	-74.530
6.800 6.900	0.048 0.048	-85.190 -85.460	0.952 0.951	-54.420 -55.230	0.952 0.951	-54.420 -55.230	0.059 0.059	-79.130 -79.460	6.800 6.900	0.909 0.907	-82.490 -83.510	0.393 0.396	9.380 8.380	0.393 0.396	9.380 8.380	0.907 0.905	-75.470 -76.400
7.000	0.048	-85.580	0.951	-56.050	0.951	-56.050	0.060	-79.700	7.000	0.905	-84.560	0.399	7.380	0.399	7.380	0.904	-77.350
7.100 7.200	0.048 0.047	-85.550 -85.290	0.950 0.950	-56.850 -57.680	0.950 0.950	-56.850 -57.680	0.060 0.060	-79.860 -79.560	7.100	0.904	-85.580	0.402	6.410	0.402	6.410	0.902	-78.210
7.300	0.047	-85.250	0.950	-58.490	0.950	-58.490	0.060	-79.430	7.200 7.300	0.902 0.900	-86.570 -87.590	0.405 0.408	5.400 4.440	0.405 0.408	5.400 4.440	0.901 0.899	-79.240 -80.060
7.400	0.047	-84.700	0.949	-59.310	0.949	-59.310	0.060	-79.170	7.400	0.898	-88.630	0.411	3.480	0.411	3.480	0.898	-80.940
7.500 7.600	0.046 0.046	-84.300 -84.020	0.949 0.948	-60.120 -60.940	0.949 0.948	-60.120 -60.940	0.060 0.060	-78.790 -78.360	7.500 7.600	0.896 0.895	-89.650 -90.630	0.414 0.417	2.520 1.580	0.414 0.417	2.520 1.580	0.896 0.895	-81.800 -82.670
7.700	0.046	-83.400	0.948	-61.770	0.948	-61.770	0.060	-77.920	7.700	0.893	-91.650	0.419	0.590	0.419	0.590	0.893	-83.540
7.800 7.900	0.046 0.046	-82.890 -82.280	0.948 0.947	-62.580 -63.400	0.948 0.947	-62.580 -63.400	0.060 0.060	-77.490 -77.120	7.800	0.892	-92.640	0.422	-0.340	0.422	-0.340	0.891	-84.400
8.000	0.046	-81.610	0.947	-64.220	0.947	-64.220	0.060	-76.540	7.900 8.000	0.890 0.888	-93.600 -94.580	0.425 0.427	-1.270 -2.230	0.425 0.427	-1.270 -2.230	0.890 0.889	-85.250 -86.120
8.100	0.046	-80.960	0.946	-65.050	0.946	-65.050	0.060	-76.370	8.100	0.887	-95.560		-3.160	0.430	-3.160	0.887	-86.990
8.200 8.300	0.046 0.046	-80.450 -79.740	0.946 0.945	-65.870 -66.710	0.946 0.945	-65.870 -66.710	0.060 0.060	-75.880 -75.310	8.200 8.300	0.885 0.883	-96.500 -97.440	0.432 0.434	-4.080 -4.990	0.432 0.434	-4.080 -4.990	0.885 0.884	-87.840 -88.690
8.400	0.046	-78.800	0.945	-67.550	0.945	-67.550	0.060	-74.840	8.400	0.882	-98.440	0.436	-5.940	0.436	-5.940	0.882	-89.560
8.500 8.600	0.046 0.046	-77.850 -76.690	0.945 0.944	-68.380 -69.200	0.945 0.944	-68.380 -69.200	0.060 0.060	-74.380 -73.720	8.500 8.600	0.880	-99.370 -100.320		-6.860 -7.760	0.439 0.441	-6.860 -7.760	0.881 0.880	-90.400 -91.280
8.700	0.046	-75.220	0.944	-70.030	0.944	-70.030	0.060	-72.950	8.600 8.700	0.878 0.876	-100.320 -101.290		-7.760 -8.670	0.441	-7.760 -8.670	0.880	-91.280 -92.070
8.800	0.046	-73.840	0.944	-70.880	0.944	-70.880	0.061	-72.390	8.800	0.876	-102.340	0.445	-9.550	0.445	-9.550	0.877	-93.010
8.900 9.000	0.047 0.047	-72.270 -70.680	0.943 0.943	-71.710 -72.560	0.943 0.943	-71.710 -72.560	0.061 0.062	-71.000 -70.000	8.900 9.000	0.874 0.872	-103.150 -104.110		-10.460 -11.390	0.448 0.450		0.876 0.874	-93.680 -94.480
9.100	0.048	-69.190	0.942	-73.400	0.942	-73.400	0.062	-68.900	9.100	0.870	-105.030	0.452	-12.280	0.452	-12.280	0.873	-95.280
9.200 9.300	0.048 0.049	-67.550 -66.230	0.941 0.941	-74.250 -75.090	0.941 0.941	-74.250 -75.090	0.062 0.063	-67.920 -66.540	9.200 9.300	0.868	-105.990 -106.840		-13.140	0.454		0.871	-96.140 -96.860
9.400	0.049	-64.590	0.941	-75.090 -75.930	0.941	-75.090 -75.930	0.063	-65.420	9.300 9.400	0.867 0.866	-106.840 -107.770			0.456 0.458	-14.020 -14.910		-96.860 -97.650
9.500	0.050	-63.310	0.940	-76.770	0.940	-76.770	0.064	-64.240	9.500	0.864	-108.660	0.459	-15.750	0.459	-15.750	0.867	-98.410
9.600 9.700	0.051 0.053	-62.050 -60.350	0.939 0.939	-77.630 -78.490	0.939 0.939	-77.630 -78.490	0.064 0.065	-63.200 -62.010	9.600 9.700	0.863 0.861	-109.570 -110.480		-16.630 -17.510	0.461 0.463	-16.630 -17.510		-99.220 -100.010
9.800	0.054	-59.300	0.938	-79.350	0.938	-79.350	0.066	-60.960	9.800	0.860	-111.330	0.465	-18.360	0.465	-18.360	0.863	-100.800
9.900	0.055	-57.900	0.938	-80.200	0.938	-80.200	0.067	-60.070	9.900	0.858	-112.220	0.466	-19.210	0.466	-19.210	0.862	-101.590



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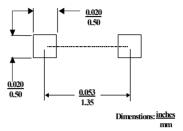
Mounting Information

The illustration indicates the recommended mounting pad configuration for the SC-79 package. Solder paste containing flux should be screened onto the pads to a thickness of 0.005-0.007 inches. The plastic package is placed in position, firmly adhering to the solder paste.

Permanent attachment is performed by a reflow soldering procedure during which the tab temperature does not exceed +275 °C and the body temperature does not exceed +260 °C.

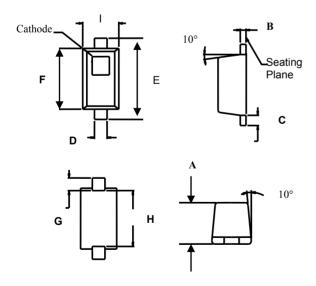
Please refer to Application Note M538 for surface mounting instructions.

SC-79



Case Styles (Cont'd)

SC-79 Case Style 1279



SC-79 (Case Style 1279)

	INC	HES	MILLIM	ETERS
DIM.	MIN.	MAX.	MIN.	MAX.
Α	0.020	0.028	0.51	0.71
В	0.003	0.008	0.08	0.20
С	0.006	0.010	0.15	0.25
D	0.010	0.014	0.25	0.36
E	0.059	0.067	1.50	1.70
F	0.043	0.051	1.09	1.30
G	0.011	0.012	0.28	0.30
Н	0.037	0.043	0.94	1.09
ı	0.027	0.035	0.69	0.89

MADP-008120-12790T



Surface Mount Plastic PIN Diodes

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